

WHAT IS CLAIMED IS:

1. An organic electro-luminescence device (OELD), comprising:
 - a plurality of column lines for applying data voltages;
 - a plurality of row lines crossing the plurality of column lines for applying scan voltages; and
 - a plurality of cells formed at pixel areas defined between crossings of the plurality of column lines and row lines, wherein each cell includes:
 - a first switching device for controlling a current applied to the cell in response to the data voltage;
 - a second switching device connected to the cell in parallel with the first switching device for controlling a current applied to the cell in response to the data voltage;
 - a third switching device for transmitting the data voltage applied from the column line to the first and second switching devices in response to a scan voltage; and
 - first and second capacitors for storing the data voltages transmitted by the third switching device while maintaining the data voltage for one frame period.

2. The organic electro-luminescence device according to claim 1, further comprising a plurality of cell drive voltage sources for applying cell drive voltages to each of the plurality of cells.

3. The organic electro-luminescence device according to claim 2, wherein the plurality of cell drive voltage sources includes:

a first cell drive voltage source connected to the first switching device; and

a second cell drive voltage source connected to the second switching device.

4. The organic electro-luminescence device according to claim 3, wherein the first and second cell drive voltages are directly connected to the first and second switching devices, respectively.

5. The organic electro-luminescence device according to claim 3, wherein the first capacitor is connected between the third switching device and the first cell drive voltage source.

6. The organic electro-luminescence device according to claim 3, wherein the second capacitor is connected between the third switching device and the second cell drive

voltage source.

7. The organic electro-luminescence device according to claim 3, wherein cell drive voltages are alternately applicable over consecutive frames by the first and second cell drive voltage sources.

8. The organic electro-luminescence device according to claim 1, wherein the first to third switching devices include thin film transistors (TFTs).

9. The organic electro-luminescence device according to claim 8, wherein the first to third switching devices include MOS TFTs.

10. The organic electro-luminescence device according to claim 9, wherein at least one of the first to third switching devices includes amorphous silicon.

11. The organic electro-luminescence device according to claim 9, wherein at least one of the first to third switching devices includes polycrystalline silicon.

12. The organic electro-luminescence device according to claim 9, wherein the

first to third switching devices are n-type MOS TFTs.

13. The organic electro-luminescence device according to claim 9, wherein the first to third switching devices are p-type MOS TFTs.

14. An organic electro-luminescence device, comprising:
a plurality of first column lines for applying a first data voltage;
a plurality of second column lines for applying a second data voltage;
a plurality of row lines crossing the first and second column lines for applying scan voltages; and

a plurality of cells formed at pixel areas defined between crossings of the first and second column lines and the row lines, wherein each cell includes:

a first switching device for controlling a current applied to the cell in response to the first data voltage;

a second switching device for controlling a current applied to the cell in response to the second data voltage;

a third switching device for transmitting the first data voltage applied from the first column line to the first switching device in response to a scan voltage;

a fourth switching device for transmitting the second data voltage applied

from the second column line to the first switching device in response to a scan voltage;

a first capacitor for storing the first data voltage transmitted by the third switching device while maintaining the first data voltage for one frame period; and

a second capacitor for storing the second data voltage transmitted by the fourth switching device while maintaining the first data voltage for one frame period.

15. The organic electro-luminescence device according to claim 14, wherein first and second data voltages are alternately applicable to the first and second column lines over consecutive frames.

16. The organic electro-luminescence device according to claim 14, further comprising a cell drive voltage source for applying a cell drive voltage to each of the plurality of cells.

17. The organic electro-luminescence device according to claim 16, wherein the first and second switching devices are connected in parallel between the cell drive voltage source and the cell.

18. The organic electro-luminescence device according to claim 16, wherein the cell drive voltage source is connected to source terminals of each of the first and second switching devices.

19. The organic electro-luminescence device according to claim 16, wherein the first capacitor is connected between the third switching device and the cell drive voltage source.

20. The organic electro-luminescence device according to claim 16, wherein the second capacitor is connected between the fourth switching device and the cell drive voltage source.

21. The organic electro-luminescence device according to claim 14, wherein the first to fourth switching devices include thin film transistors (TFTs).

22. The organic electro-luminescence device according to claim 21, wherein the first to fourth switching devices include MOS TFTs.

23. The organic electro-luminescence device according to claim 22, wherein at

least one of the first to fourth switching devices includes amorphous silicon.

24. The organic electro-luminescence device according to claim 22, wherein at least one of the first to fourth switching devices includes polycrystalline silicon.

25. The organic electro-luminescence device according to claim 22, wherein the first to fourth switching devices are n-type MOS TFTs.

26. The organic electro-luminescence device according to claim 22, wherein the first to fourth switching devices are p-type MOS TFTs.

27. An organic electro-luminescence device, comprising:
a plurality of column lines for applying data voltages;
a plurality of row lines crossing the plurality of column lines for applying scan voltages; and
a plurality of cells formed at pixel areas defined between crossings of the column lines and the row lines, wherein the each cell includes:
a first switching device for controlling a current applied to the cell in response to the data voltage;

a second switching device connected to the cell in parallel with the first switching device for controlling a current applied to the cell in response to the data voltage;

a third switching device provided as a current mirror with the first and second switching devices;

a fourth switching device for transmitting the data voltage applied from the column line to the first and second switching devices in response to a scan voltage;

a fifth switching device connected between the fourth, first, and second switching devices for transmitting the data voltage transmitted by the fourth switching device to each of the first and second switching devices, respectively; and

first and second capacitors for storing the data voltage transmitted through the fourth and fifth switching devices while maintaining the first data voltage for one frame period.

28. The organic electro-luminescence device according to claim 27, further comprising a plurality of cell drive voltage sources for applying :

a plurality of drive voltage sources for applying cell drive voltages to each of the plurality of cells.

29. The organic electro-luminescence device according to claim 28, wherein the drive voltage sources includes:

a first cell drive voltage source connected to the first switching device;

a second cell drive voltage source connected to the second switching device; and

a third cell drive voltage source connected to the third switching device.

30. The organic electro-luminescence device according to claim 29, wherein the first to third cell drive voltages are directly connected to the first to third switching devices, respectively.

31. The organic electro-luminescence device according to claim 29, wherein the first capacitor is connected between the third switching device and the first cell drive voltage source.

32. The organic electro-luminescence device according to claim 29, wherein the second capacitor is connected between the third switching device and the second cell drive voltage source.

33. The organic electro-luminescence device according to claim 29, wherein cell

drive voltages are alternately applicable over consecutive frames by the first and second cell drive voltage sources.

34. The organic electro-luminescence device according to claim 27, wherein substantially identical cell drive voltages are applicable by the first to third cell drive voltage sources.

35. The organic electro-luminescence device according to claim 25, wherein the first to fifth switching devices include thin film transistors (TFTs).

36. The organic electro-luminescence device according to claim 33, wherein the first to fifth switching devices include MOS TFTs.

37. The organic electro-luminescence device according to claim 36, wherein at least one of the first to fifth switching devices includes amorphous silicon.

38. The organic electro-luminescence device according to claim 36, wherein at least one of the first to fifth switching devices includes polycrystalline silicon.

39. The organic electro-luminescence device according to claim 36, wherein the first to fifth switching devices are n-type MOS TFTs.

40. The organic electro-luminescence device according to claim 36, wherein the first to fifth switching devices are p-type MOS TFTs.

41. A method of driving of an organic electro-luminescence device, comprising:
providing a plurality of column lines for applying data voltages;
providing a plurality of row lines for applying scan voltages;
providing a plurality of cells at pixel areas defined between the column lines and the row lines, wherein each of the plurality of cells includes:

a first cell drive voltage source and a second cell drive voltage source for driving the cells in response to the data voltage;

a first switching device for controlling a current applied to the cell in response to the data voltage;

a second switching device connected in parallel with the first switching device for controlling a current applied to the cell; and

a third switching device for transmitting a data voltage from the column line to the first and second switching devices;

alternately applying first and second cell drive voltages from the first and second cell drive voltage sources, respectively, to the cells over consecutive periods;

applying the data voltages from the column lines; and

applying the scan voltages from the row lines in synchrony with the data voltages.

42. The method of driving according to claim 41, further comprising:

providing a first capacitor between the first and third switching devices;

providing a second capacitor between the second and third switching devices; and

applying the data voltages to the first and second capacitors to charge the first and second capacitors and maintain the data voltages for one frame period.

43. The method of driving according to claim 42, further comprising causing predetermined ones of the plurality of cells to emit light in correspondence with the first and second cell drive voltages and the applied data voltages.

44. The method of driving according to claim 43, further comprising applying the first and second cell drive voltages prior to application of the data voltages.

45. The method of driving according to claim 43, further comprising alternately

applying the first and second cell drive voltages over consecutive frame periods.

46. The method of driving according to claim 45, further comprising causing predetermined ones of the plurality of cells to emit light in correspondence with the data voltages and the alternately applied first and second cell drive voltages.

47. The method of driving according to claim 43, wherein causing predetermined ones of the plurality of cells to emit light includes:

applying the data voltages charged within the first and second capacitors to the first and second switching devices, respectively;

determining current path widths of the first and second switching devices by the applied data voltages; and

applying the first and second cell drive voltages to the cells in accordance with the determined current path widths.

48. A method of driving of an organic electro-luminescence device, comprising:
providing a plurality of first column lines for applying a first data voltage;
providing a plurality of second column lines for applying a second data voltage;
providing a plurality of row lines for applying scan voltages;

providing a plurality of cells at pixel areas defined between the first and second column lines and the row lines, wherein each of the plurality of cells includes:

a first switching device for controlling a current applied to the cell in response to the first data voltage;

a second switching device for controlling a current applied to the cell in response to the second data voltage;

a third switching device for transmitting the data voltage applied from the first column line to the first switching device;

a fourth switching device for transmitting the data voltage applied from the second column line to the second switching device;

alternatively applying the first and second data voltages from the first and second column lines, respectively, over consecutive periods; and

applying scan voltages from the row lines in synchrony with the first and second data voltages.

49. The method of driving according to claim 48, further comprising:

providing a first capacitor between the first and third switching devices

applying the first data voltage to the first capacitor to charge the first capacitor for one frame period; and

providing a second capacitor between the second and fourth switching devices to charge the second capacitor for one frame period.

50. The method of driving according to claim 49, further comprising causing predetermined ones of the plurality of cells to emit light in correspondence with the first and second data voltages and the applied cell drive voltage.

51. The method of driving according to claim 49, further comprising alternately applying the first and second data voltages over consecutive frame periods.

52. The method of driving according to claim 51, further comprising causing predetermined ones of the plurality of cells to emit light in correspondence with the cell drive voltage and the alternately applied first and second data voltages.

53. The method of driving according to claim 52, wherein causing predetermined ones of the plurality of cells to emit light includes:

applying the data voltages charged within the first and second capacitors to the first and second switching devices, respectively;

determining current path widths of the first and second switching devices by the

applied first and second data voltages; and

applying the cell drive voltage to the cells in accordance with the determined current path widths.

54. A method of driving of an organic electro-luminescence device, comprising:
providing a plurality of column lines for applying data voltages;
providing a plurality of row lines for applying scan voltages;
providing a plurality of cells at pixel areas defined between the column lines and the row lines, wherein each of the plurality of cells includes:

first, second, and third cell drive voltage sources for driving the cells in response to the data voltage;

a first switching device for controlling a current applied to the cell in response to the data voltage;

a second switching device connected in parallel with the first switching device for controlling a current applied to the cell;

a third switching device for forming a current mirror with the first and second switching devices; and

fourth and fifth switching devices connected in series to each other for transmitting a data voltage applied from the column line to the first and second

switching devices, respectively;

alternately applying first and a second cell drive voltages from the first and second cell drive voltage sources, respectively, to the cells over consecutive periods;

applying the data voltages from the column lines;

applying the scan voltages from the row lines in synchrony with the data voltages;

and

applying a third cell drive voltage from the third cell drive voltage source in synchrony with the data voltages.

55. The method of driving according to claim 54, further comprising:

providing a first capacitor between the first and third switching devices;

providing a second capacitor between the second and third switching devices; and

applying the data voltages to the first and second capacitors to charge the first and second capacitors and maintain the data voltages for one frame period.

56. The method of driving according to claim 55, further comprising causing predetermined ones of the plurality of cells to emit light in correspondence with the first and second cell drive voltages and the applied data voltages.

57. The method of driving according to claim 56, further comprising applying the first and second cell drive voltages prior to application of the data voltages.

58. The method of driving according to claim 56, further comprising alternately applying the first and second cell drive voltages over consecutive frame periods.

59. The method of driving according to claim 54, wherein voltages applied from the first to third cell drive voltages are the substantially equal.

60. The method of driving according to claim 58, further comprising causing predetermined ones of the plurality of cells to emit light in correspondence with the data voltages and the alternately applied first and second cell drive voltages.

61. The method of driving according to claim 55 wherein causing predetermined ones of the plurality of cells to emit light includes:

applying the data voltages charged within the first and second capacitors to the first and second switching devices, respectively;

determining current path widths of the first and second switching devices by the

applied data voltages; and

applying the first and second cell drive voltages to the cells in accordance with the determined current path widths.